

Exhibit 300: Capital Asset Summary

Part I: Summary Information And Justification (All Capital Assets)

Section A: Overview & Summary Information

Date Investment First Submitted: 2010-09-20
Date of Last Change to Activities: 2012-08-23
Investment Auto Submission Date: 2012-02-27
Date of Last Investment Detail Update: 2012-02-27
Date of Last Exhibit 300A Update: 2012-08-23
Date of Last Revision: 2012-08-23

Agency: 021 - Department of Transportation **Bureau:** 12 - Federal Aviation Administration

Investment Part Code: 01

Investment Category: 00 - Agency Investments

1. Name of this Investment: FAAXX804: NextGen R&D Reduce Weather Impact (RWI)

2. Unique Investment Identifier (Ull): 021-351011071

Section B: Investment Detail

- 1. Provide a brief summary of the investment, including a brief description of the related benefit to the mission delivery and management support areas, and the primary beneficiary(ies) of the investment. Include an explanation of any dependencies between this investment and other investments.**

NextGen is a series of inter-linked programs, systems, and policies that implement advanced technologies and capabilities to dramatically change the way the current aviation system is operated. NextGen is satellite-based and relies on a network to share information and digital communications so all users of the system are aware of other users' precise locations. The RWI solution set is a portfolio of research and development projects focused on improving efficiency of operations. It will improve weather predictions by supporting proactive planning operations rather than hurriedly adjusting for impacts after the weather has changed. Improvements include providing accurate, consistent, and integrated weather information to Air Traffic Management Specialists, other air traffic control facilities, airline flight operations centers (FOC), and the flight deck to support both tactical and strategic operational decision-making tools. Other refinements will be developed that improve weather observations, upgrade forecasts, and disseminate weather information to mitigate the severity of weather impacts on NAS operations. Improved forecasts will incorporate a better characterization of uncertainty and assist operators in safely planning and conducting four dimensional, gate-to-gate, trajectory-based operations to not only avoid storm hazards and provide comfortable flight conditions, but also to increase overall efficiency by improving routing/rerouting decision making. Decision support systems will directly incorporate weather data to aid decision makers in determining the impact of weather on NAS operations and the

best response to potential weather-related operational effects, thus minimizing the level of traffic restrictions required in planning horizons that extend from 0–8 hours. We will upgrade four functional areas: expand weather sensing capability to provide better observations that support better forecasting; make weather processing more sophisticated and better tailor forecasts for users; integrate weather information into decision-support tools; and ensure users have access to all information. NextGen Network Enabled Weather (NNEW) will be the core of the NextGen weather support services. It will enable widespread distribution of weather products to enhance collaborative and dynamic NAS decision making. It will provide network access to weather information from many different sources (including the 4-D Wx Data Cube and SWIM).

2. How does this investment close in part or in whole any identified performance gap in support of the mission delivery and management support areas? Include an assessment of the program impact if this investment isn't fully funded.

Current NAS weather data is not well integrated into either manual procedures or automated decision-support systems, nor is it readily available to the full spectrum of decision makers. To support the predicted volume of future air traffic operations, improvements are needed. The current system does not respond desirably to unpredicted weather situations or to weather systems that evolve differently than expected. The Traffic Management Synchronization/Trajectory management service area's planned improvement is the following: Initial Integration of Weather Information into NAS Automation and Decision Making will disseminate timely, more accurate weather information to the FAA and airline dispatch decision support tools. It will also provide more users easier access to weather information. Having improved weather forecasts, and easier access to them, as well as integrating this information into decision support tools, will improve efficiency of operations by avoiding unnecessary deviations from planned flight paths saving time and fuel. The ATC Advisory & Flight Planning, Emergency and Alerting, Infrastructure Information Management/Flight and State Data Management service area's planned improvement is the following: Initial improved weather information from non-ground based sensors will collect weather information from aircraft in flight and satellites to supplement the existing network of ground sensors to improve safety of flight. It will increase the reliability of forecasts of turbulence, convective weather, and in-flight icing, improving accuracy of these weather forecasts will be route and altitude specific, which improves both safety and efficiency. Reducing funding would delay benefits beyond the 2012-2018 plan.

3. Provide a list of this investment's accomplishments in the prior year (PY), including projects or useful components/project segments completed, new functionality added, or operational efficiency achieved.

Received JRC approval for the successful completion of the Initial Analysis Readiness Decision (IARD) for the NextGen Weather Processor (NWP) Work Package 1; Delivered preliminary 2010 Consolidated Storm Prediction for Aviation (CoSPA) evaluation results briefing; Completed NextGen Weather Surveillance/Weather Radar ConOps; Completed Gap identification for surface sensors in super density operations airspace; Weather Community of Interest met and approved the criteria for evaluating weather translation and integration technologies. These criteria will be used to analyze the potential weather translation technologies suitable for use with such programs as WTMD, TFDM ERAM, TFMS, CSPO, and TBFM, and documented the results in the ATM-Weather Integration Plan; Completed

Advanced 0-8h convective weather forecast Consolidated Storm Prediction for Aviation/LAMP CCFP Hybrid (CoSPA/LCH) Operational Evaluation Final Report NWP Market Survey released to industry.

4. Provide a list of planned accomplishments for current year (CY) and budget year (BY).

FY12: Obtain Initial Investment Decision for the NextGen Weather Processor (NWP) Work Package 1; Complete update to preliminary portfolio requirements; Complete detailed analysis of alternatives; Complete Market surveys of commercial forecast capabilities; Initiate Segment 1 business case; Complete EA products update; Complete Flexible Terminal Sensor Network Capability Initial Design Documentation; Complete Planning Documentation for Department of Defense Radar Backend Analysis; Complete Planning Documentation for Phased-Array Antenna Development and Evaluation; Support Segment 1 Final Investment Decision (NWP WP1); NAS EA Weather Roadmap; Update Weather Transition Plan; CoSPA Prototype Management; Support CoSPA 1.0 Transition; Conduct concept maturity assessment for Forecast Icing Product; Turbulence Forecast and Nowcast product; Validate and demonstrate NextGen Radar Mosaics for NAS Compliance; Enhance manual quality management system (QMS) Process to include Operational Aviation Weather Products; Develop Functional requirements for Automated QMS Process; Develop metrics to assess improvements in convection (nowcast and forecast); Evaluate methodologies to monetize avoidable and unavoidable weather delays; Finalize Requirements for Selected Set of ATM-Wx Translation Technologies; Develop Selected Set of ATM-Wx Translation Technologies. FY13: Complete Final Investment Analysis for NWP Segment 1 to get to a Final Investment Decision; Solution Development for Segment 1: Award Contract for NWP Segment 1 based on FID; Provide Final NWP WP1 GFI package to Prime Contractor; Begin solution development for Convective weather 0-8 hr forecast and determine how to address ITWS functionality as part of NWP Segment 1 Annual NAS EA Weather Roadmap updates; Support Segment 1 Final Investment Decision (NWP WP1); CoSPA Prototype Management and evaluation; Continue manual QMS Process Management; Continue development and enhancements of metrics concept; Complete work to define Right-Size collector concept; Evaluate collector concept; Develop collector WP1 concept demonstrations; WP1 Transition to acquisition; and Update Right-Size multi-year plan.

5. Provide the date of the Charter establishing the required Integrated Program Team (IPT) for this investment. An IPT must always include, but is not limited to: a qualified fully-dedicated IT program manager, a contract specialist, an information technology specialist, a security specialist and a business process owner before OMB will approve this program investment budget. IT Program Manager, Business Process Owner and Contract Specialist must be Government Employees.

2012-12-20

Section C: Summary of Funding (Budget Authority for Capital Assets)

1.

Table I.C.1 Summary of Funding

	PY-1 & Prior	PY 2011	CY 2012	BY 2013
Planning Costs:	\$42.0	\$21.4	\$15.6	\$16.6
DME (Excluding Planning) Costs:	\$0.0	\$0.0	\$0.0	\$0.0
DME (Including Planning) Govt. FTEs:	\$0.0	\$0.0	\$0.0	\$0.0
Sub-Total DME (Including Govt. FTE):	\$42.0	\$21.4	\$15.6	\$16.6
O & M Costs:	\$0.0	\$0.0	\$0.0	\$0.0
O & M Govt. FTEs:	\$0.0	\$0.0	\$0.0	\$0.0
Sub-Total O & M Costs (Including Govt. FTE):	0	0	0	0
Total Cost (Including Govt. FTE):	\$42.0	\$21.4	\$15.6	\$16.6
Total Govt. FTE costs:	0	0	0	0
# of FTE rep by costs:	0	0	0	0
Total change from prior year final President's Budget (\$)		\$0.0	\$-17.4	
Total change from prior year final President's Budget (%)		0.00%	-52.73%	

2. If the funding levels have changed from the FY 2012 President's Budget request for PY or CY, briefly explain those changes:

FY12 funding reduced due to FY12 appropriation adjustment as well as removal of DOT infrastructure adjustment.

Section D: Acquisition/Contract Strategy (All Capital Assets)

Table I.D.1 Contracts and Acquisition Strategy

Contract Type	EVM Required	Contracting Agency ID	Procurement Instrument Identifier (PIID)	Indefinite Delivery Vehicle (IDV) Reference ID	IDV Agency ID	Solicitation ID	Ultimate Contract Value (\$M)	Type	PBSA ?	Effective Date	Actual or Expected End Date
Awarded		MIT Lincoln Labs DTFAWA-10-X-80013 Task A									
Awarded		MIT Lincoln Labs DTFAWA-10-X-80013 Task B									

2. If earned value is not required or will not be a contract requirement for any of the contracts or task orders above, explain why:

FAA's AMS includes policy and guidance on the utilization of EVM, and EVM is applied to NextGen investments in accordance with this policy. Once programs are approved and baselined, EVM is conducted in accordance with FAA and DOT policy. Investments described in this Exhibit are managed in the NextGen Portfolio Management Framework which requires project level agreements (PLAs) that document project scope, purpose, planned cost, major milestones and relationships to other programs and the NAS EA. This information is maintained in an automated tool where project managers provide monthly status on activities. The data maintained in the tool provides an annual master milestone list and current status information. For each activity a project plan and a supporting project schedule are developed to document major milestones, decisions and deliverable.

Exhibit 300B: Performance Measurement Report

Section A: General Information

Date of Last Change to Activities: 2012-08-23

Section B: Project Execution Data

Table II.B.1 Projects

Project ID	Project Name	Project Description	Project Start Date	Project Completion Date	Project Lifecycle Cost (\$M)
G04W0201	Weather Observation Improvements	<p>A consistent and effective aviation weather observation sensor network is fundamental to NextGen. The existing sensor network is comprised of aging, stand-alone capabilities that were not designed to meet the flexible, open, and adaptable needs of NextGen. RWI weather observation improvements will manage the evolution of the existing capability to one that possesses the optimal quantity and quality of ground, air, and space-based sensors. Initial activities include assessing the current sensor network capabilities and identifying gaps. Technical studies will then be conducted to identify economical methods to consolidate existing legacy capabilities, provide improved capability, and make sensor outputs more universally available. When fielded, this will result in a homogenous network of sensing equipment that</p>			

Table II.B.1 Projects

Project ID	Project Name	Project Description	Project Start Date	Project Completion Date	Project Lifecycle Cost (\$M)
		requires fewer resources to maintain and manage and is readily accessible to all NextGen users. Weather Observation Improvements will optimize quality and accuracy, while Weather Forecast Improvements will enhance coverage, accuracy, real-time forecasting techniques, and translation techniques for weather integration support to users and Decision Support Tools (DSTs).			
G04W0301	Weather Forecast Improvements (NWP)	<p>The Weather Forecast Improvement program supports the need to improve weather decision-making and the use of weather information in the transformed National Airspace System (NAS). This includes integrating weather information tailored for Decision Support Tools (DSTs) and systems into NextGen operations; implementing improved forecasts through Research Transition (RT) of advanced forecast capabilities from aviation weather research; developing and using metrics to evaluate the effectiveness of weather improvements in the NAS; developing probabilistic forecasts that can be effectively used in air traffic and traffic flow management; and determining the most effective solution for a processor architecture to support these capabilities. Reduce Weather Impact (RWI) will propose recommendations for near-, mid- and far- timeframes that will include a recommendation for the transition</p>			

Table II.B.1 Projects

Project ID	Project Name	Project Description	Project Start Date	Project Completion Date	Project Lifecycle Cost (\$M)
		of FAA legacy systems. Collectively, the effect of the NextGen RWI portfolio will examine stand-alone weather displays, eliminate cognitive interpretation of weather and impact assessments, and significantly decrease impact delays. NextGen RWI will redesign weather information to integrate with and support decision-oriented automation abilities and human decision-making processes.			

Activity Summary

Roll-up of Information Provided in Lowest Level Child Activities

Project ID	Name	Total Cost of Project Activities (\$M)	End Point Schedule Variance (in days)	End Point Schedule Variance (%)	Cost Variance (\$M)	Cost Variance (%)	Total Planned Cost (\$M)	Count of Activities
G04W0201	Weather Observation Improvements							
G04W0301	Weather Forecast Improvements (NWP)							

Key Deliverables

Project Name	Activity Name	Description	Planned Completion Date	Projected Completion Date	Actual Completion Date	Duration (in days)	Schedule Variance (in days)	Schedule Variance (%)
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NONE

Section C: Operational Data

Table II.C.1 Performance Metrics								
Metric Description	Unit of Measure	FEA Performance Measurement Category Mapping	Measurement Condition	Baseline	Target for PY	Actual for PY	Target for CY	Reporting Frequency

NONE